WILLAMETTE NATIONAL FOREST
BURNED AREA EMERGENCY RESPONSE

TERWILLIGER FIRE
WILDLIFE RESOURCE ASSESSMENT

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OBJECTIVES

Identify values at risk within, adjacent, and downstream of the burned area.
Assess changes to resource conditions as a result of the fire.
Identify level of risk to values, considering direct and indirect effects having substantial threats to human life and safety, property, and important natural and cultural resources.

BURNED AREA CHARACTERIZATION

The Terwilliger Fire area totals about 11,463 acres of the Willamette National Forest including 1,283 acres (11%) of matrix lands, 845 acres (7%) of Late Successional Reserves, 5,849 acres (51%) of Congressional Withdrawn lands within the Three Sisters Wilderness, 2,687 acres (23%) of Adaptive Management Areas, and 800 acres (7%) of Administratively Withdrawn areas (mostly Wild and Scenic River). The fire area is within the current range of northern spotted owl (NSO), a species that is listed as threatened under the Endangered Species Act. Prior to the fire, about 57% of the area (6,491 acres) was considered suitable habitat (nesting, roosting, and/or foraging habitat) for the northern spotted owl. An additional 1,872 acres (16%) of the fire area were considered dispersal-only habitat and 3,100 acres (27%) of young, previously logged forest and high-elevation areas were considered currently unsuitable for spotted owls.

About 26% (2,956 acres) of the burn area is in northern spotted owl critical habitat subunit WSC-4, including about 1,771 acres of suitable habitat and 242 acres of dispersal-only habitat.

The western and southern portions of the fire area outside of wilderness are surveyed yearly for nesting northern spotted owls as part of the Central Cascades Demographic Study area. Six known Spotted Owl Activity Centers (MSNOs 0113, 0861, 2031, 2418, 2433, and 2461) occur within the fire area. Three other known spotted owl territories overlap the fire perimeter on part their home range, including one Activity Center (MSNO 1416) where the nest patch overlaps the edge of the fire.

Three of the Spotted Owl Activity Centers (MSNOs 2031, 2418, and 2433) inside the fire perimeter are in critical habitat subunit WCS-4. One additional spotted owl site (MSNO 1413) whose Activity Center is outside the fire perimeter, but whose Core Area and Home Range overlaps the fire area, is also in critical habitat subunit WCS-4.

BARC mapping adjusted for field and overflight visual assessments indicate that the majority of the fire burned at very low to low severity with about 1,263 acres of moderate severity burning (11% of the fire area) and 173 acres of high severity burning (1.5% of the fire area). In the Critical Habitat, about 386 acres burned with moderate severity (13% of the CH in the fire area) and 17 acres burned with high severity.

VALUES AT RISK AND THREATS
Critical BAER Value: Northern Spotted Owl Critical Habitat and Occupied Suitable Habitat

Threat: Stress from the fire including greater risk from blowdown, mass soil movement, flooding and insects and disease could result in additional mortality to remaining live trees and further reduce NSO suitable habitat and usable critical habitat and threaten the viability of nesting territories

A secondary issue was to assess if proposed BAER activities could affect spotted owl nest sites or result in disruption of nesting if conducted during the critical breeding season from March 1-July 15.

RESOURCE ASSESSMENT (include methods & data used)
Three mapping techniques were available to assess effects of the fire on spotted owl habitat. These were the draft BARC mapping, the final BARC mapping, and a RAVG map. Field and visual overhead assessments indicated that the moderate and high severity burn areas identified on the draft BARC mapping best corresponded to areas of stand replacement fire that were unsuitable habitat for NSO post-fire. By contrast, the low burn and very low burn areas showed limited to no overstory tree mortality and had mostly retained their existing habitat function (i.e. suitable or dispersal-only) post-fire. The high and moderate severity areas in the draft BARC mapping totaled 1,846 acres and were thought to slightly underestimate the fire effects. The final BARC mapping showed less acreage in the high and moderate classes (1,436 acres) and would underestimate the effects further so it was not used. The RAVG mapping, which is designed to show tree mortality, mapped 1,536 acres with 76-100% loss of basal area and 2,125 acres with 50-75% mortality. Based on the field observations, the 76-100% RAVG category alone underestimated the low of habitat while the combined 50-100% category (totaling 3,661 acres or 32% of the fire area) seemed to greatly over-estimate the fire effects. Therefore draft BARC mapping was used as the best indicator of initial fire effects on spotted owl habitat.

Existing owl habitat mapping was overlaid over the draft BARC severity mapping to identify owl habitat that was now unsuitable due to the fire (i.e. suitable habitat in the draft BARC moderate and high severity areas).

Owl territories are subdivided into 300-meter radius nest patches around the nest tree or Activity Center, 0.5-mile radius Core Areas around the Activity Center or nest tree,

and 1.2-mile radius general home ranges around the Activity Center or nest tree. Ideally at least 50% of the Core Area should contain suitable habitat and at least 40% of the general home range should contain suitable habitat. The 40 and 50% suitable values are referred to as thresholds levels for nesting success. Spotted owls will continue to nest in territories below those values but nesting success becomes impaired as suitable habitat declines below threshold levels. At low levels of suitable habitat (e.g., below 25% in the Core Area and below 20% in the general home range), the territory may no longer be considered viable for spotted owl reproduction.

The post-fire composition of known owl home ranges was estimated by adjusting the current suitable habitat in the Core Area and general home range to account for the moderate and high severity burn area. About 1,101 acres of suitable habitat and 343 acres of dispersal habitat were converted to unsuitable due to the fire. In Critical Habitat, about 312 acres of suitable habitat and 26 acres of dispersal habitat were converted to unsuitable due to the fire.

Three owl territories (MSNOs 0113, 1413, 2461) that overlap the fire have high percentages of suitable habitat remaining in the Core Area and general home ranges post-fire. These territories are expected to remain well above habitat threshold levels for functional for nesting even if some additional habitat is lost to post-fire mortality.

One owl territories (MSNO 2418) that overlaps the fire had the % suitable in the Core Area reduced from 61.6% to 51.7% while the % suitable in the general home range was reduced from 65.1% to 62.4%. In addition, about half of the nest patch including the center had stand-replacement crown fire. Because of the high amount of suitable habitat remaining in the territory, the territory should continue to have sufficient habitat to support nesting but the nest patch is expected to shift due to the loss of habitat at the site center. This site is based on a 2010 nesting pair and was last occupied by a resident single in 2017.

MSNO 2434 was well below threshold levels for nesting with 32% suitable in the Core Area and only 15% suitable habitat in the general home range. The fire, including post-fire mortality of trees, should have little negative effect on this territory since only about 12 acres of suitable habitat outside the Core Area was lost to burning.

MSNO 1416 was slightly below threshold levels for nesting with 48.1% suitable in the Core Area and 38.9% suitable habitat in the general home range. About 58 acres of suitable habitat was lost to the fire, including 2 acres in the Core Area, dropping the above percentages down to 47.7% and 36.9%, respectively. The fire plus additional post-fire mortality of trees should have a small negative effect on this territory. The territory was last occupied in 2014 by a nesting pair.

MSNOs 0861, 2031, and 2433 were all sub-optimal territories based on suitable habitat prior to the fire and all had substantial loss of habitat in the home range (94 to 466 acres) and in the Core Area (47 to 124 acres). In addition, one-third to one half of the nest patch had stand-replacing crown fire for these sites. Loss of habitat from the fire

plus additional expected post-fire tree mortality, will make these territories substantially less viable for nesting. This is especially the case for MSNO 2433 (Slide Creek) which now has only about 18% suitable habitat in the Core Area and 21% in the general home range and for MSNO 0861 (Boone Creek) which has only about 19% suitable habitat in the Core Area and 22% in the general home range. MSNO 0861 was last occupied in 2009 by a resident single. MSNO 2031 (Penny Creek) was last occupied in 2012 by a single. MSNO 2433 was last occupied in 2006 by a nesting pair. MSNOs 0861 and 2031 were last occupied by a nesting pair in 2008.

The fire has negatively affected the ability for critical habitat to support the conservation and recovery of spotted owls in the territories of MSNO 2031 and 2433.

ASSESSMENT OF VALUES AT RISK (formerly Emergency Determination, utilize the logical path and buzz words from the BAER values and Risk Assessment)

Moderate probability that some suitable habitat will become unsuitable or dispersal-only habitat during the next decade due to post-fire tree mortality based on professional judgment and the overall low severity of the fire.

Magnitude of this additional loss of habitat is estimated to have minor consequences to northern spotted owls and their critical habitat because the areas where this mortality is most likely to occur are currently suboptimal of nesting and have not been recently occupied by nesting pairs.

The risk of no treatment is low.

Proposed BAER actions include trail repair, weed treatments, site cleanup at the Hot Springs, and storm patrol and culvert cleaning along Roads 19, 500, and 1985-115. The limited potential mechanical activities are not likely to result in disruption to owl nesting if they occur during the critical nesting period because they are outside the disruption distance of known nest sites that are likely to be occupied. Nest patches that overlap the three roads were heavily impacted by the fire, have not supported nesting in recent years, and are not likely to be occupied in 2019 because of habitat loss in the territory and burning in the nest patch centers including nest trees.

RESPONSE ACTIONS RECOMMENDED TO MITIGATE THE RISK (measurably reduces the threat and passes the benefit:cost test)

No effective treatments to mitigate for additional tree mortality are known.

No seasonal restrictions are proposed for the BAER activities due to the low risk of disruption to northern spotted owls.